

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently Amended) Apparatus comprising
two or more electronic components, each of the components having
an internal circuit having a controlled element and a control element, and
terminals coupled to the internal circuit and adapted for surface mounting on a circuit board,
the internal circuits of the components being adapted to be connected in parallel through
one of the terminals of each of the internal circuits to a common point of an external circuit and
to cooperatively protect the external circuit against occurrence of ~~an~~ one or more adverse
electrical events, wherein the one or more adverse electrical events comprises the external circuit
drawing more than a threshold amount of current,
wherein none of the electronic components has ratings sufficient by itself to protect the
external circuit.
2. (Currently Amended) The apparatus of claim 1 in which one or more of the events
comprises a loss of a source of power for the external circuit.
3. (Currently Amended) The apparatus of claim 1 in which one or more of the events
comprises a sudden change in a voltage at a point of load of the external circuit.
4. (Original) The apparatus of claim 1 in which the controlled element comprises a FET.
5. (Currently Amended) The apparatus of claim 1 in which the internal circuit is adapted to
detect a current reversal in a path between a power source and the external circuit, and ~~the a~~

controlled element is controlled to disconnect the power source from the external circuit in response to the detection.

6. (Original) The apparatus of claim 1 in which the internal circuits are connected in parallel between a single power source and the external circuit.
7. (Original) The apparatus of claim 1 in which each of the internal circuits includes a voltage generator adapted to derive power from an external source and to provide a voltage to drive the internal circuit.
8. (Currently amended) The apparatus of claim 1 in which each of the internal circuits includes circuitry adapted to monitor the voltage across the controlled element. ~~a comparator that compares the voltages at the common point and at another point to determine when a current has reversed.~~
9. (Original) The apparatus of claim 1 in which the internal circuit comprises a FET and a control circuit connected to control the FET.
10. (Original) The apparatus of claim 9 in which the FET and the control circuit are formed on a single integrated substrate.
11. (Original) The apparatus of claim 9 in which the FET and the control circuit comprise discrete components mounted on a single substrate.
12. (Original) The apparatus of claim 10 or 11 in which the FET, the control circuit, and the terminals are part of a micro-lead package.

13. (Currently Amended) ~~The apparatus of claim 1 in which the internal circuit includes~~

Apparatus comprising:

two or more electronic components, each of the components having
an internal circuit having a controlled element and a control element,
terminals coupled to the internal circuit and adapted for surface mounting on a
circuit board, and

elements adapted to pull up a voltage at one of the terminals when the voltage at the terminal drops and elements adapted to pull down the voltage at the one of the terminals when the voltage at the terminal rises,

the internal circuits of the components being adapted to be connected in parallel through
one of the terminals of each of the internal circuits to a common point of an external circuit and
to cooperatively protect the external circuit against occurrence of an adverse electrical event.

14. (Original) The apparatus of claim 13 in which the elements comprise a DC-to-DC converter.

15. (Withdrawn) Apparatus for providing a filtering function to an external circuit comprising

a controlled element,
a control element for controlling the voltage across the controlled element such that the average voltage across the controlled element changes with variations in the signal that is to be filtered.

16. (Withdrawn) The apparatus of claim 15 in which the external circuit comprises a power converter, and the filtering function comprises ripple filtering of a power converter.

17. (Withdrawn) The apparatus of claim 16 in which the filtering function comprises attenuating the ripple generated at an output of the converter.

18. (Withdrawn) The apparatus of claim 16 in which the filtering function comprises attenuating the ripple generated at an input of the converter.
19. (Withdrawn) The apparatus of claim 15 in which the controlled element comprises a FET the conductivity of which is controlled to provide the filtering function.
20. (Withdrawn) The apparatus of claim 15 in which the control element includes elements adapted to detect a component of ripple at one of the terminals.
21. (Withdrawn) The apparatus of claim 20 in which the controlled element comprises a MOSFET, and the average voltage across the MOSFET is controlled to be greater than the peak-to-peak variation in the ripple.
22. (Withdrawn) The apparatus of claim 20 in which the control regime includes regulating the voltage variations across the FET to effect ripple attenuation.
23. (Withdrawn) The apparatus of claim 15 further comprising terminals coupled to the apparatus and adapted for surface mounting on a circuit board.
24. (Withdrawn) The apparatus of claim 15 in which the controlled element and the control element are formed as a circuit integrated on a single substrate.
25. Apparatus comprising
a protection circuit, and
terminals for connecting the protection circuit respectively to a power source and to an external circuit that is to be powered by the source and protected by the protection circuit against an occurrence of an electrical event,

the protection circuit comprising a first and second protection mechanism, the protection mechanisms being connected to provide ~~two~~ different kinds of protection for the external circuit using at least two controlled elements,

wherein the first protection mechanism provides a current drain on the power source to pull the voltage down at a point of load.

26. (Currently Amended) The apparatus of claim 25 in which the ~~protection circuit comprises two~~ protection mechanisms are connected in series between the power source and the external circuit.

27. (Currently Amended) The apparatus of claim 25 in which the second protection mechanisms includes two FETs connected in series.

28. (Original) The apparatus of claim 27 in which the FETs are connected in a common drain configuration.

29. (Original) The apparatus of claim 27 in which the FETs are connected in a common source configuration.

30. (Currently Amended) The apparatus of claim 25 in which the protection circuit is adapted to be ~~comprises two protection mechanisms~~ connected across ~~an~~ the external circuit.

31. (Original) The apparatus of claim 30 in which the protection mechanisms include a FET.

32. (Currently Amended) The apparatus of claim ~~30~~25 in which ~~one of the~~ first protection mechanisms shunts current away from the external circuit.

33. (Currently Amended) The apparatus of claim ~~30~~ 25 in which ~~one of the~~ second protection mechanisms delivers current to the external circuit.
34. (Currently Amended) The apparatus of claim ~~32~~ 25 in which the first protection mechanism shunts current to ground.
35. (Currently Amended) The apparatus of claim 25 ~~32~~ also including an energy reservoir at a predetermined voltage, and in which the first protection mechanism shunts current to the energy reservoir.
36. (Currently Amended) The apparatus of claim 25 ~~30~~ in which the apparatus comprises an energy reservoir at a predetermined voltage, and in which the second protection mechanism delivers current ~~to~~ from the energy reservoir.
37. (Withdrawn) A method comprising
setting an average voltage across a series pass element in an active filter based upon variations in a signal that is to be filtered.
38. (Withdrawn) The method of claim 37 further comprising
measuring peak-to-peak variations in the signal to be filtered
39. (Withdrawn) The method of claim 38 further comprising
setting the average voltage to be slightly greater than the peak-to-peak variations.
40. (New) The apparatus of claim 13 wherein none of the electronic components has ratings sufficient by itself to protect the external circuit.
41. (New) Apparatus comprising

a protection circuit comprising two protection mechanisms connected across an external circuit;

terminals for connecting the protection circuit respectively to a power source and to the external circuit that is to be powered by the source and protected by the protection circuit against an occurrence of an electrical event, the protection circuit being connected to provide two different kinds of protection for the external circuit using at least two controlled elements; and

an energy reservoir at a predetermined voltage, wherein one of the protection mechanisms shunts current away from the external circuit to the energy reservoir.

42. (New) Apparatus comprising

a protection circuit comprising two protection mechanisms connected across an external circuit;

terminals for connecting the protection circuit respectively to a power source and to the external circuit that is to be powered by the source and protected by the protection circuit against an occurrence of an electrical event, the protection circuit being connected to provide two different kinds of protection for the external circuit using at least two controlled elements; and

an energy reservoir at a predetermined voltage, wherein one of the protection mechanisms delivers current to the energy reservoir.